

REMARKS

Claims 110-126 and 135-177 were pending in the application. By this Amendment, claim 177 is cancelled without prejudice, and claims 110, 113 and 135-137 have been amended to more particularly point out and distinctly claim the invention. Claims 110 and 135-137 are the independent claims. Favorable reconsideration is requested.

The following remarks, in conjunction with the above presented claim amendments, are believed to be fully responsive to the Office Action mailed December 13, 2003.

I. Objection to Claims 111 and 113

Claim 111 stands objected to as being a substantial duplicate of claim 113. Claim 113 has been amended by changing the term “carbon” to “carbon black”. Therefore, claim 113, as amended, is no longer a substantial duplicate of claim 111.

Accordingly, Applicants submit that the objection to claim 111 should be withdrawn.

II. Claims 110-126 and 135-177 are Patentable Over the Cited References**A. Rejection of claims 110-114, 118-120, 135-145, 155-161 and 170 under 35 U.S.C. § 102(b) as allegedly being anticipated by US Patent No. 5,066,372 to Weetall et al. (“Weetall,”).**

Applicants submit that Weetall does not disclose the presently claimed invention. A finding of anticipation under 35 U.S.C. § 102 requires the disclosure in a single prior art reference of each element of the claim under consideration. *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the

field of the invention. *Scripps Clinic & Research Found. v. Genetech Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991).

Independent claim 110, as amended, recites:

110. (Currently Amended) A multi-well plate comprising a plurality of wells, wherein at least two of said wells of said multi-well plate have antibodies immobilized on independently addressable electrodes centered at the bottom of said wells.

Weetall does not disclose the multi-well plate of claim 110. More specifically, Weetall does not teach or suggest antibodies can be immobilized on graphite electrodes. On the contrary Weetall specifically teaches away from the plates of the present invention by teaching a collection of magnetic particles having immobilization antibodies on graphite electrodes. Consequently, Weetall does not teach or suggest an essential element of claim 110, as amended, and of each claim dependent thereon.

Weetal does not teach the multi-well plate of claim 135. Independent claim 135 recites:

135. (Currently amended) A multi-well plate comprising a plurality of wells in a standard multi-well format, wherein at least two of said wells of said multi-well plate have antibodies immobilized on independently addressable electrodes centered at the bottom of said wells.

Weetal does not teach that antibodies can be immobilized on graphite electrodes, for the reasons argued above. Moreover, in contrast to the multi-well plate of claim 135, the sensor of Weetall is not a plate in a “standard multi-well format,” as evidenced from a top view in Figure 1 and cross-sectional view in Figure 2 of Weetal. The wells of Weetall are nothing more than indents in a sensor; a configuration very dissimilar to a standard multi-well plate as that term is known in the art. Consequently, Weetall does not teach or suggest another essential element

of claim 135 and all claims dependent thereon, in addition to Weetal's failure to teach the element of antibody immobilization, as argued above.

Thus, the disclosure of Weetal does not anticipate the presently claimed subject matter and is not a valid reference against any of claims 110-114, 118-120, 135-145, 155-161 and 170. Accordingly the rejection based upon Weetal should be withdrawn. Favorable reconsideration is earnestly solicited.

B. Rejection of claims 110, 112, 117, 119-121, 124-126, 135-137, 141-142, 152-154, 156-171 and 174-176 under 35 U.S.C. § 102(e) as allegedly being anticipated by US Patent No. 5,605,662 to Heller et al. ("Heller," hereinafter).

Applicants submit that Heller does not disclose the presently claimed invention. A finding of anticipation under 35 U.S.C. § 102 requires the disclosure in a single prior art reference of each element of the claim under consideration. *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genetech Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991).

Heller does not teach or suggest immobilizing antibodies on the electrodes. The oligonucleotides of Heller are immobilized on a permeation layer/support (see, Figure 6) and never come into physical contact with the electrode, as discussed below.

Applicants urge that the Office Action has misinterpreted the device of Heller as being a multi-well plate, which it is not. While the projection in Figure 5 of Heller looks confusingly similar to a microtiter plate, Heller is highly specific in calling the central block a "microfabricated microlocation device (54)." The device, as further explained in Figure 6 of

Heller, demonstrates that microlocations (55) are through-holes having permeation layers dipped into a common buffer reservoir (59), which are not physically connected to the electrode circuit board (52) (see the gap above the microlocation device). Thereby, the device of Heller is highly distinct from a standard multi-well plate and is highly distinct from any device of the instant invention. Consequently, Heller does not teach or suggest essential elements of any of the currently pending claims.

Furthermore, the device of Heller consists of a single reservoir of common buffer (see, Figure 6) and not multiple sample reservoirs provided by the wells of a multi-well plate. Consequently a device as described in any of independent claims 100 and 135-137 allows two or more samples to be processed using different buffers (“at least two of said wells of said multi-well plate have independently addressable electrodes”), whereas the device of Heller, while in principle may allow for the analysis of multiple analytes in a sample, clearly does not allow for an analysis under more than one assay condition. This essential feature of the claimed invention is neither taught nor suggested by Heller.

Therefore, the disclosure of Heller does not anticipate the presently claimed subject matter, and the rejection based upon Heller should be withdrawn. Favorable reconsideration is earnestly solicited.

C. Rejection of claims 115-116 and 146-151 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Heller or Weetall in view of Rourke et al. (US Patent 4,720,910, (“Rourke”).

Heller and Weetall, alone or in combination, do not teach or suggest the presently claimed invention for the reasons set forth above. Rourke does not compensate for the

deficiencies of Heller and Weetall as references against claims 115-116 and 146-151 for the following reasons.

The relevant inquiry is whether the prior art suggests the invention and whether the prior art provides one of ordinary skill in the art with a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be found in the prior art. In *re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

Applicants urge that Rourke merely teaches the use of composite materials in electrochemical cells (e.g., batteries). Consequently, the disclosure of Rourke does not provide one of ordinary skill in the art with a reasonable expectation of success in using composite materials as electrodes in diagnostic instruments. For example, the disclosure of Rourke, whether alone or in combination with the disclosure of Heller and Weetall, does not provide a reasonable expectation of success in immobilizing antibodies on the composite materials of Rourke.

Moreover, the suggestion to combine the elements must come from the reference cited and not from the applicant's disclosure. See *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). To establish a prima facie case of obviousness based on a combination of references, the Examiner is required to demonstrate that the prior art provides "a reason, suggestion, or motivation to lead an inventor to combine those references." *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996). Moreover,

[E]vidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or in some cases, from nature of the problem solved. ... The range of sources available, however, **does not diminish the requirements for actual evidence. That is, the showing must be clear and particular.**

*In re Dembicza*k, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citation omitted, emphasis added).

There is neither motivation nor any suggestion in the cited references to make the combination suggested by the Examiner. Weetall and Heller do not teach or suggest using composite materials in the disclosed electrochemical sensors. Rourke does not teach or suggest that the disclosed materials are applicable to cassettes for conducting ECL measurements.

Favorable reconsideration and the withdrawal of the rejection are earnestly solicited.

D. Rejection of Claims 122-123, 172-173 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Heller in view of US Patent No. 5,541,113 to Siddigi et al. (“Siddigi”).

Heller does not teach or suggest the presently claimed invention for the reasons set forth above. Siddigi does not compensate for the deficiencies of Heller as a valid reference against claims 122-123, 172-173 as next discussed. Specifically, Siddigi does not teach or suggest the direct immobilization of antibodies on the working electrode. On the contrary, Siddigi explicitly teaches “[a] magnet 14 can be used for harvesting magnetic particles from the aqueous solution, such as magnetic particles associated with, for example, an antigen-antibody complex.” Consequently, Siddigi does not teach or suggest the currently claimed multi-well plate of claims 110 or 135 (upon which claims 122-123 and 172-173 are respectively dependent).

A finding of obviousness under 35 U.S.C. § 103(a) requires a determination that the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made. *Graham v. Deere*, 383 U.S. 1 (1956). The relevant inquiry is whether the prior art

suggest the invention and whether the prior art provides one of ordinary skill in the art with a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be found in the prior art. In *re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

In light of these legal requirements, Applicants urge that there is no reasonable basis to combine the teachings of Siddigi with those of Heller. There is no indication that the electrochemical sensor of Heller -- designed to measure reduction/oxidation reactions -- would be useful in the electrochemiluminescence measurements of Siddigi and there is no motivation in either reference that would lead one of ordinary skill in the art to combine the references. Therefore, Applicants submit, the rejection of claims 122-123, 172-173 under 35 U.S.C. § 103(a) is improper and should be withdrawn. Favorable reconsideration is earnestly solicited.

CONCLUSION

In view of the amendments and remarks presented herein, Applicants believe that each ground for rejection or objection made in the instant application has been successfully overcome or obviated, and that all the pending claims are now in condition for allowance. Withdrawal of the Examiner's rejections and objections, and passage to allowance of the current application are respectfully requested.

The Examiner is invited to telephone the undersigned attorney in order to resolve any issues that might arise and to promote the efficient examination of the current application.

No additional fees are believed necessary for entry of this Amendment. However, the Commissioner is hereby authorized to charge any additional fee to Deposit Account No. 50-0540.

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Respectfully submitted,



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